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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,579	03/01/2004	Peter W. Lee	AP99-005BB	9866
7590	01/23/2006		EXAMINER	
George O. Saile 28 Davis Avenue Poughkeepsie, NY 12603			MAI, ANH D	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/790,579

Applicant(s)

LEE ET AL.

Examiner

Anh D. Mai

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of the Claims

1. Amendment filed November 30, 2005 has been entered. Claims 13-15 have been amended. Claims 13-15 are pending.

Specification

2. The disclosure is objected to because of the following informalities: the description of Fig. 3a and 3b appear to be incorrect.

Appropriate correction is required.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "bit line connects to select and control portion of a channel, and bit line connects to a stacked gate portion and source line connects to select and control portion of a channel, and source line connects to a stacked gate portion" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must

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be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 13-15 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that claims 13-15 fail to correspond in scope with that which applicant(s) regard as the invention can be found in the drawing. In Fig. 3a, as indicated by the Applicant as the claimed invention, applicant has stated "upon which the original claim 13-15 are directed, and this statement indicates that the invention is different from what is defined in the claim(s) because:

Step c) recites: "whereby a bit line connects to select and control portion of a channel of a memory device of said cells in the first column and the bit line connect to a stacked gate portion of said channel of the third column of cells".

However, according to Fig. 3a, the line that control the channel is word line WL, and the line that connects cells of the first and third column (horizontal) is again WL.

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As shown in the drawings, bit line BL are connected to the source/drain of the memory cells, vertically, see step b).

Step e) recites: “whereby said source line connects to a stacked gate portion of said channel of the first column of cells and the source line connects to a select and control portion of said channel of the second column of cells”.

Again, source lines SL only connect to source/drain of cells and the line that connect to the stacked gates or to a select and control portion of the channel are WL.

The specification, page 11-12 describing the invention of Fig. 3a, appears to be contradicting the elements in the drawing.

5. Claims 13-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim recite both an apparatus and method of use (programming operation and erasing operation). It has been held that a claim reciting both an apparatus and a method of using that apparatus renders a claim indefinite under section 112, paragraph 2. *Ex parte Lyell*, 17 USPQ 2d 1548 (BPAI 1990). (See MPEP 2173.05(p)(ii)).

Therefore, claims 13-15 are indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuroda et al. (U.S. Patent No. 5,548,146).

With respect to claim 13, as best understood by the examiner, Kuroda teaches a non volatile memory as claimed including:

a) flash memory cells (Q) organized in rows (Q00, Q01, Q02) and columns (Q00, Q10, Q20),

b) cells (Q) in a row are interconnected by a word line (W) connecting to control gates of the flash memory cells (Q) in the row,

c) cell layout in a first column of cells having a same cell layout in adjacent second and a third columns of cells (Q), whereby a word line (W0) connects to a select and control portion of a channel of a memory device of the cells (Q00) in the first column and the word line (W0) connects to a stacked gate portion of the channel of the third column of cells (Q02),

d) a bit line (D2) extends full length of the columns (vertically), laying between the cells of the first (Q00) and third (Q02) columns,

e) a source line (D1) extends full length of columns (vertically), laying between the cells of the first (Q00) and second (Q01) columns, whereby the word line connects to a stacked gate

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portion of the channel of the first column of cells (Q00) and the word line connects to a select and control portion the channel of the second column of cells (Q01),

the cells arrays of Kuroda are capable of programming and erasing operation as claimed including:

f) a program operation of the flash memory cells organized by a vertical page comprising memory cells in the first column, whereby a source line voltage and a bit line voltage of the vertical page are set for the program operation and a word line program voltage is stepped from cell to cell in the first column,

g) an erase operation of the flash memory cells organized by horizontal block comprising a first row of cells adjacent to a second row of cells and whereby all bit lines, source lines and word lines of the horizontal block are coupled to a same low voltage and then word lines coupled to cells in the horizontal block are biased to an erase voltage,

h) the cell (Q) layout in the columns allowing vertical page programming and horizontal page/block erase. (See Fig. 2).

With respect to claim 14, the bit lines (D) of Kuroda provide a path to read data stored in the cells (Q) when performing a read operation.

With respect to claim 15, the source line (D1) connect to sources of cells (Q00, Q10, Q20) of the first column, connect to drains of cells (Q01, Q11, Q21) of the second column and connect to source voltages.

Response to Arguments

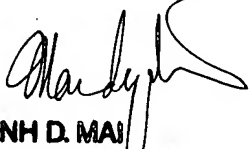
7. Applicant's arguments with respect to amended claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh D. Mai whose telephone number is (571) 272-1710. The examiner can normally be reached on 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


ANH D. MAI
PRIMARY EXAMINER